TABLE 7

Run	Binder	Additive	Binder/Additive/TiO_2, volume %	Calculated Specific Gravity, g/cm³	Total Volume Loss, 2500 cycles, cm³
7-1	6100[1]	None	93.4/0/6.6	1.28	Fell apart <1500 cycles.
7-2	6100	L430.77-3[2]	75.3/18/6.6	1.29	0.57
7-3	6100	8500[3]	75.3/18/6.6	1.29	0.70
7-4	6100	DDDA[4]	84/9.3/6.9	1.34	0.79
7-5	6300[5]	None	93.4/0/6.6	1.28	Fell apart <300 cycles
7-6	6300	8500	75.3/18/6.6	1.29	0.81
7-7	6300	DDDA	77.3/15.8/6.87	1.34	0.82
7-8	7610[6]	None	93/0/7	1.36	Fell apart <500 cycles
7-9	7610	DDDA	77.3/15.8/6.87	1.34	0.84
7-10	815[7]	None	93.1/0/6.9	1.34	0.97
7-11	815	L430.77-3	74.5/18.6/6.9	1.34	0.48

[1]Almatex ™ 6100 epoxy functional acrylic, commercially available from Anderson Development Co.
[2]L430.77-3 thermoplastic aliphatic polyurethane, commercially available from Morton International
[3]AP-8500 linear carboxyl functional aliphatic polyester, commercially available from Anderson Development Co.
[4]1,12-Dodecanedioic acid, commercially available from E. I. DuPont
[5]Almatex ™ 6300 epoxy functional acrylic, commercially available from Anderson Development Co.
[6]Almatex ™ 7610 epoxy functional acrylic, commercially available from Anderson Development Co.
[7]Joncryl 815 carboxyl functional acrylic, commercially available from SC Johnson Polymer

EXAMPLE 8

A series of pavement marking materials containing combinations of various propylene polymers and curable epoxy resins was prepared, applied to aluminum panels using the general method of Run 3-2, and evaluated using the Taber Abraser Tester. Each material contained a polypropylene binder and an epoxy additive (both identified below), together with 3 weight % (based on the weight of the polypropylene) of a maleated polypropylene (GXX15 polypropylene, commercially available from Eastman Chemicals) and 0.5 weight percent (based on the weight of the polypropylene) of a UV absorber (TINUVIN 770 hindered amine light stabilizer, commercially available from Ciba-Geigy). The samples were pressed between silicone liners and maintained at 200° C. for 3 minutes during the hot lamination step to effect thermosetting of the epoxy. The results are set out below in Table 8.

TABLE 8

Run	Binder	Additive	Binder/Additive/TiO_2, volume %	Calculated Specific Gravity, g/cm³	Total Volume Loss, 2500 cycles, cm³
8-1	3505[1]	ERL 4221[2]	88/5.1/7.3	1.13	0.40
8-2	3505	ERL 4221	82/10/7.3	1.15	0.45
8-3	3505	Epon 1001F[3]	71/21/8.3	1.19	0.40
8-4	1441[4]	ERL 4221	88/5.1/7.3	1.13	0.56
8-9	1441	Epon 1001F	88/5.1/7.3	1.13	0.55

[1]EXXON 3505 400 melt flow index polypropylene, commercially available from Exxon Chemical Co.
[2]ERL 4221 cycloaliphatic liquid epoxy resin, commercially available from Union Carbide Corp.
[3]EPON 1001F aromatic solid epoxy resin, commercially available from Shell Chemical Co.
[4]AMOCO 1441 1200 melt flow index polypropylene, commercially available from Amoco Chemical Co.

EXAMPLE 9

A 10:90 weight ratio dry powder blend of a curable epoxy resin powder and a polypropylene polymer powder was prepared, flame-sprayed onto aluminum panels using the general method of Example 1, and evaluated using the Taber Abraser Tester. The curable epoxy resin powder was EPON 1001F aromatic solid epoxy resin, commercially available from Shell Chemical Co. The polypropylene powder was AMOCO 1441 1200 melt flow index polypropylene, commercially available from Amoco Chemical Co. These two ingredients were mixed by tumbling. The resulting mixture had a calculated specific gravity of 0.92 g/cm³. A Model 124 flame-spray system (commercially available from Plastic Flamecoat Systems) was used to apply the blend. The resulting coatings were postheated using the flame-spray apparatus for four different lengths of time ranging from zero to about ten seconds. The results are set out below in Table 9.

TABLE 9

Run	Postheating time, seconds (approximate)	Color following postheating	Total Volume Loss, 2000 cycles, cm³
9-1	0	Clear	Fell apart < 30 cycles.
9-2	3	Clear	Fell apart < 20 cycles.
9-3	6	Beige	Fell apart < 1200 cycles.
9-4	10	Tan	0.27

Various modifications and alterations of this invention will be apparent to those skilled in the art without departing from the scope and spirit of this invention. It should be understood that this invention is not limited to the illustrative embodiments set forth above.

What is claimed is:

1. A method for marking a transportation surface comprising the steps of:

a) heating the surface to a temperature above ambient temperature;

b) melting or otherwise substantially softening a finely-divided, free flowing, flame-sprayable, powder binder material selected from the group consisting of acrylic

polymers and copolymers, olefin polymers and copolymers having a number average molecular weight greater than 10,000, urethane polymers and copolymers, curable epoxy resins, ester polymers and copolymers, and blends thereof;

c) applying the molten or softened binder to the surface together with a particulate topcoat or particulate filler selected from the group consisting of reflective elements, skid-resistant particles, magnetizable particles and mixtures thereof; and

d) allowing the thus-applied materials to cool and form a marker in which the binder adheres directly to the surface.

2. A method according to claim 1, wherein the applied materials are postheated after they are applied to the surface.

3. A method according to claim 1, wherein the binder is thermosettable.

4. A method according to claim 1, wherein the binder comprises a blend.

5. A method according to claim 4, wherein the blend comprises olefin polymer or copolymer and curable epoxy resin.

6. A method according to claim 4, wherein the blend comprises an acrylic polymer or copolymer and one or more of a urethane or ester polymer or copolymer.

7. A method according to claim 4, wherein the blend comprises acrylic polymer or copolymer and ethylene acrylic acid or ethylene methacrylic acid copolymer.

8. A method according to claim 1, wherein the marker comprises two or more layers, with at least the layer adjacent the transportation surface having such binder adhered directly to such surface.

9. A method according to claim 1, wherein the binder comprises an ethylene acrylic acid or ethylene methacrylic acid copolymer and the particulate filler or particulate topcoat comprise reflective elements and skid-resistant particles.

* * * * *

10. A method for marking a transportation surface comprising the steps of:

a) heating the surface to a temperature above ambient temperature;

b) flame spraying onto the surface a finely-divided, free flowing powder binder material comprising acrylic polymer or copolymer, olefin polymer or copolymer, urethane polymer or copolymer, curable epoxy resin, ester polymer or copolymer, or blend thereof and a particulate topcoat or particulate filler comprising reflective elements, skid-resistant particles, magnetizable particles or mixture thereof; and

c) allowing the thus-applied materials to cool and form a marker in which the binder adheres directly to the surface.

11. A method according to Claim 10, wherein the applied materials are postheated after they are applied to the surface.

12. A method according to Claim 10, wherein the binder is thermosettable.

13. A method according to Claim 10, wherein the binder comprises a dry powder blend.

14. A method according to Claim 13, wherein the blend comprises curable epoxy resin and olefin polymer or copolymer.

15. A method according to Claim 13, wherein the blend comprises acrylic polymer or copolymer and one or more of a urethane or ester polymer or copolymer.

16. A method according to Claim 13, wherein the blend comprises acrylic polymer or copolymer and ethylene acrylic acid or ethylene methacrylic acid copolymer

17. A method according to Claim 13, wherein the blend comprises a mixture of thermosettable and thermoplastic marterials.

18. A method according to Claim 10, wherein the binder comprises an ethylene acrylic acid or ethylene methacrylic acid copolymer and the particulate filler or particulate topcoat comprise reflective elements and skid-resistant particles.

19. A method according to Claim 10, wherein the marker comprises two or more layers.

20. A kit comprising one or more containers comprising finely-divided, free flowing, flame-sprayable, powder binder material comprising acrylic polymer or copolymer, urethane polymer or copolymer, curable epoxy resin, ester polymer or copolymer, or blend thereof, together with a particulate topcoat or particulate filler comprising reflective elements, skid-resistant particles, magnetizable particles or mixture thereof.

21. A kit according to Claim 20, wherein the binder is thermosettable.

22. A kit according to Claim 20, wherein the binder comprises curable epoxy resin.

23. A kit according to Claim 20, wherein the binder comprises a dry powder blend.

24. A kit according to Claim 23, wherein the blend comprises curable epoxy resin and olefin polymer or copolymer.

25. A kit according to Claim 23, wherein the blend comprises acrylic polymer or copolymer and one or more of a urethane or ester polymer or copolymer.

26. A kit according to Claim 23, wherein the blend comprises acrylic polymer or copolymer and ethylene acrylic acid or ethylene methacrylic acid copolymer.

27. A kit according to Claim 23, wherein the blend comprises a mixture of thermosettable and thermoplastic marterials.

28. A kit according to Claim 20, wherein the binder has a melt index greater than about 200.

29. A kit according to Claim 28, wherein the melt index is greater than about 500.

30. A kit according to Claim 20, wherein the kit components comprise two containers, one comprising binder and the other comprising reflective elements or skid-resistant particles.

31. A kit according to Claim 20, wherein the kit components are a substantially uniform powder mixture in a single container.

32. A kit according to Claim 20, comprising reflective elements and skid-resistant particles, and further comprising pigment and an extending or reinforcing filler comprising calcium carbonate, alumina having a particle diameter less than 150 μm, wollastonite, glass fibers, or substantially glassy particles.

33. Transportation surface marker comprising:

a) a binder comprising a blend of:

i) curable epoxy resin and olefin polymer or copolymer,

ii) acrylic polymer or copolymer and one or more of a urethane or ester polymer or copolymer,

iii) acrylic polymer or copolymer and olefin polymer or copolymer, with

b) a particulate topcoat or particulate filler comprising reflective elements, skid-resistant particles, magnetizable particles, or mixture thereof,

wherein the binder adheres directly to the transportation surface.

34. A transportation surface marker according to Claim 33, wherein the binder is thermoset.

35. A transportation surface marker according to Claim 33, wherein the marker is about 0.13 to about 2 mm thick and has a generally planar upper surface.

36. A transportation surface marker according to Claim 33, wherein the topcoat has a reflective element coating weight of about 0.04 to about 0.17 kg/m^2.

37. A transportation surface marker according to Claim 33, wherein the marker comprises skid-resistant particles having a particle diameter between about 300 and about 1500 μm, and the marker has surface frictional properties of at least about 45 British Pendulum Number.

38. A transportation surface marker according to Claim 33, wherein the marker is adjacent to a transportation surface and contains two or more layers, with at least the layer adjacent the transportation surface containing binder adhered directly to such surface.

39. A transportation surface marker according to Claim 38, wherein the layers have different colors and part of the layer that is adjacent the transportation surface is visible.

40. Transportation surface marker comprising a binder comprising a blend of thermosettable and thermoplastic marterials, and a particulate topcoat or particulate filler comprising reflective elements, skid-resistant particles, magnetizable particles, or mixture thereof, wherein the binder adheres directly to the transportation surface.

41. A transportation surface marker according to Claim 40, wherein the marker is about 0.13 to about 2 mm thick and has a generally planar upper surface.

42. A transportation surface marker according to Claim 40, wherein the topcoat has a reflective element coating weight of about 0.04 to about 0.17 kg/m^2.

43. A transportation surface marker according to Claim 40, wherein the marker comprises skid-resistant particles having a particle diameter between about 300 and about 1500 μm, and the marker has surface frictional properties of at least about 45 British Pendulum Number.

44. A transportation surface marker according to Claim 40, wherein the marker is adjacent to a transportation surface and contains two or more layers, with at least the layer adjacent the transportation surface containing binder adhered directly to such surface.

45. A transportation surface marker according to Claim 44, wherein the layers have different colors and part of the layer that is adjacent the transportation surface is visible.